Bentham
Plank

INSTALLATION GUIDELINES

BENTHAM PLANK

INTRODUCTION

This installation guide is aligned with the National Wood Flooring Association (www.nwfa.org) standards. All wood flooring installations must comply with applicable NWFA guidelines, local building codes, and manufacturer recommendations.
Where conditions are not specifically addressed in this document, NWFA guidelines shall apply.
IMPORTANT -Improper installation, unsuitable jobsite conditions, or failure to follow these guidelines may result in product failure and will void warranty coverage.
For questions about the installation process, please contact our authorized Bentham Plank dealer or email **support@benthamplank.com.**

PRIOR TO INSTALLATION

The installer is responsible for confirming that all general jobsite requirements are satisfied prior to installation, and for ensuring that the selected installation method (Glue Down, Nail Down, Floating, and when applicable, Radiant Heat) is executed in accordance with these guidelines.
Upon delivery, the installer must carefully inspect the material for color, grade consistency, visible defects, damage, or any other concerns related to appearance. **A limited number of cartons (typically 1–2 cartons) should be opened for initial inspection and reviewed with the project supervisor and/or homeowner to confirm acceptance.**
If any issue is identified, installation must not proceed. No additional cartons should be opened, and the supplier must be contacted immediately for resolution. Except for the initial inspection cartons, opened materials are generally not eligible for return.
Do not install any material that is visibly defective or unsatisfactory. Installation of any flooring constitutes full acceptance of the product's appearance by the installer and the end user.

NOTE
Wood is a natural product that contains natural characteristics, thus natural variations of color and grain from each plank are to be expected. Our warranty does not cover these natural characteristics and variations from each wood plank. To avoid dramatic variations mainly caused by aging, we highly recommend completing the entire flooring installation process in the same lot.

Radiant Heat Systems
If the flooring is to be installed over a radiant heat system, the installer must review the radiant heat requirements before finalizing system design, selecting materials, or beginning installation. Not all wood species or plank dimensions are suitable for radiant heat applications, and limitations may apply. In wood flooring installations over radiant heat, moderate surface checking, cracking (especially at the ends of planks and around knots), shrinkage, gapping between planks, and slight cupping are all to be expected and do not constitute a manufacturing defect.

Wide Plank Installation Considerations

For nail-down installations involving wider planks (generally 5 inches and above), the use of adhesive in combination with mechanical fastening is required. This may be achieved through full-spread adhesive application or glue-assist methods, depending on jobsite conditions and installer preference.

Although engineered wood flooring offers improved dimensional stability compared to solid wood, it will still respond to changes in temperature and humidity. Seasonal expansion and contraction, including minor gaps between planks (especially in wider boards) are expected and do not constitute a manufacturing defect.

ACCLIMATION

Do not begin acclimation until all parties, including the installer and homeowner/end-user, have inspected the flooring and confirmed that the material appearance (color, grade, and overall condition) is acceptable. Opened cartons are not returnable.

Prior to opening any cartons, determine the quantity of material required for each room or installation area and distribute the cartons accordingly. Environmental conditions may vary between different exposures (such as south- or west-facing rooms versus north- or east-facing rooms), and should be taken into consideration during acclimation.

Acclimation must only begin after the jobsite has reached stable, occupancy-ready conditions (refer to “General Requirements”). Once conditions are appropriate, carefully open both ends of each carton by cutting small slits in the packaging. Do not fully open cartons or cut internal strapping at this stage.

Flooring should remain packaged during acclimation, as premature removal may lead to bowing, bending, or distortion, making installation more difficult.

At the start of acclimation, use a pin-type moisture meter to take 20–30 moisture content (MC) readings per 1,000 square feet of flooring. A hygrometer should also be used to measure and record ambient temperature and relative humidity (RH). All readings must be documented.

Moisture content and environmental conditions should be rechecked periodically throughout the acclimation process. For consistency, measurements should be taken on the same boards previously tested whenever possible. Acclimation is complete when moisture readings have stabilized and the flooring has reached equilibrium moisture content (EMC) relative to the jobsite conditions.

Acclimation time will vary depending on environmental conditions. While many installations may require approximately 5 days or more, proper acclimation must be determined by moisture stability—not by a fixed timeframe.

Failure to properly acclimate flooring may result in excessive movement, including gapping, cupping, or warping, and is not covered under warranty.

GENERAL TOOLS AND ACCESSORIES (All Installation Methods)

The following tools and accessories are commonly used for wood flooring installation:

Vacuum cleaner or broom; tape measure; chalk line and chalk; safety glasses; breathing protection; level; straight edge or leveling bar; scraper; claw hammer; pry bar; tapping block; spacers; table saw; miter saw; hand saw; nail punch; wood and/or concrete moisture meter; protective floor covering.

Additional tools and materials, such as leveling compounds, sandpaper, slip tongues, and wood glue, may be required depending on jobsite conditions. Refer to the specific tool and material requirements listed under each installation method (Glue Down, Nail Down, Nail + Glue, or Floating Floor) for additional tools as needed.

Tape Use - Avoid applying tape directly to the flooring surface whenever possible. Instead, use alternative methods such as strap clamps to pull planks together during installation.

If tape must be used, only use low-adhesion tape suitable for finished wood surfaces and remove it promptly after application. Do not apply tape directly to temporary protective coverings placed over the floor; tape coverings to themselves instead.

Damage caused by improper use of tape is not considered a manufacturing defect and is not covered under warranty.

JOBSITE INSPECTION AND PREPARATION

Regional Climate Considerations

Interior environmental conditions are influenced by regional climate and seasonal changes. Wood flooring can be installed in all regions; however, installation methods and jobsite preparation must be appropriate for local environmental conditions.

Installers should consider differences in temperature and humidity between rooms (for example, south- or west-facing areas versus north- or east-facing areas), as these may affect flooring performance.

Exterior Conditions

Before installation, the installer must inspect the exterior of the structure to confirm the jobsite is ready to receive wood flooring. Walk the perimeter of the building and check for conditions that may impact the flooring, including:

- Improper grading
- Poor drainage
- Standing water near the foundation
- Signs of moisture intrusion

All concerns should be documented (photos recommended) and discussed with the homeowner and/or builder. Installation must not proceed until any conditions that may introduce moisture into the structure are properly addressed.

Grade Level (Above / On / Below Grade)

The installer must determine the grade level of the installation area to ensure proper material use and installation method.

- Above-grade: Subfloor is above surrounding ground level
- On-grade: Subfloor is at or slightly above ground level
- Below-grade: Subfloor is 3 inches or more below ground level

Bentham Plank engineered wood flooring is approved for use in above-grade, on-grade, and below-grade applications when proper site conditions are met. Below-grade installations require careful evaluation of moisture conditions. Installation method should be selected based on subfloor type, moisture test results, and NWFA guidelines.

Site Drainage

Proper exterior drainage is critical to prevent moisture-related issues.

- Ground must slope away from the structure a minimum of 6 inches within the first 10 feet
- Hard surfaces (such as concrete or pavement) should slope at least 2% away from the building
- Water from rain, irrigation, or nearby sources must not accumulate near the foundation

Water infiltration toward the structure can result in elevated subfloor moisture and flooring failure. If drainage issues are observed, they must be corrected by a qualified professional prior to flooring delivery or installation.

Interior Conditions

Interior environmental conditions must be stable prior to, during, and after installation.Temperature should be maintained within a range of **60°F – 75°F**, and relative humidity within **35% – 55%**, with conditions consistently maintained to reflect normal living environments.Conditions must reflect normal living environments and be maintained consistently.

In most cases, achieving and maintaining the required interior conditions will require that HVAC systems are installed and operational. HVAC systems should be running prior to delivery, acclimation, and installation, and must be capable of maintaining stable temperature and humidity levels throughout the project.

Wood flooring must not be delivered, stored, or installed in spaces with uncontrolled temperature or humidity. Installation shall not proceed if environmental conditions cannot be maintained.

Subfloor Conditions

The installer is responsible for evaluating and preparing the subfloor prior to installation.

The subfloor must be:

- Structurally sound

- Clean and free of debris
- Dry (moisture tested)
- Flat within required tolerances

The subfloor must meet flatness tolerances of no more than **3/16 inch variation within a 10-foot span**, or **1/8 inch variation within a 6-foot span**.

Subfloor irregularities must be corrected prior to installation:

- High spots should be sanded or ground down
- Low areas should be filled using appropriate leveling compounds

Subfloor movement (such as squeaks or deflection) must be corrected before installation.

Wood Subfloor Moisture

Wood subfloors must be tested using a pin-type moisture meter.

- Maximum moisture content: 10%
- Moisture difference between subfloor and flooring: not more than 2%

Moisture readings should be taken throughout the installation area (minimum 20 readings per 1,000 sq ft) to ensure consistent conditions. Installation must not proceed if wood subfloor moisture exceeds these limits.

Concrete Subfloor Moisture

Concrete subfloors must be tested in accordance with NWFA guidelines using appropriate methods, including:

- ASTM F1869 (Calcium Chloride Test)
- ASTM F2170 (In-Situ Relative Humidity Test)

Test results must be evaluated in conjunction with:

- Jobsite conditions
- Subfloor type
- Adhesive manufacturer requirements

Installation method and any required moisture mitigation system must be selected based on test results. Installation shall not proceed unless concrete moisture conditions are within the limits defined by the adhesive manufacturer and applicable industry standards.

Crawl Space (Where Applicable)

Crawl spaces must be dry, properly ventilated, and protected against ground moisture.

- Minimum clearance: 18 inches
- Vapor barrier: minimum 6-mil polyethylene

Excess moisture in crawl spaces can migrate into the subfloor and affect flooring performance.

Preparing the Perimeter

Prior to installation, all door trims, jambs, and casings should be undercut to allow the flooring to fit underneath. Adequate expansion space must be provided between the flooring and all vertical obstructions, including walls, door frames, pipes, cabinets, and other fixed objects. This space allows the flooring to expand and contract with changes in environmental conditions.

Failure to provide sufficient expansion space may result in damage to the flooring and is not covered under warranty. Permanent fixtures, such as cabinets or islands, should not be installed on top of the flooring. These should be installed on the subfloor prior to flooring installation.

Layout

Prior to installation, plan the layout of the flooring to achieve a balanced and visually consistent appearance.

Whenever possible, begin installation along a straight exterior wall to establish a reference line. A chalk line should be used to ensure the starting row is straight and properly aligned. On wood subfloors, flooring should generally be installed perpendicular to the floor joists or at a 45-degree angle to improve structural stability. When installing over radiant heat systems, install perpendicular to the primary direction of the heating elements.

End joints should be staggered from row to row to avoid alignment. A minimum stagger of approximately 8 inches is recommended, and patterns such as “H-joints” should be avoided to ensure a more natural appearance. Avoid starting or ending the installation with excessively narrow boards. Adjust the starting row or layout as needed to maintain balanced board widths across the room.

For floating floor installations, large continuous areas may require expansion breaks and transition moldings depending on room size and layout.

Please Note

Failure to properly evaluate jobsite conditions, moisture levels, or subfloor preparation may result in issues such as gapping, cupping, warping, adhesive failure, or other installation-related problems. These conditions are not considered manufacturing defects and are not covered under warranty.

INSTALLATION INSTRUCTIONS

NAIL DOWN (NAIL ONLY) INSTALLATION

Nail-down installation is generally not recommended for planks wider than 5 inches or for installations over radiant heat systems. For radiant heat applications, Glue Down or Floating Floor installation methods should be used. For planks wider than 5 inches, the use of adhesive in combination with mechanical fastening may be required. Refer to the Nail + Glue Installation Instructions for additional details.

Applicable Subfloors

Nail-down installation may be used over wood subfloors that meet the requirements outlined under Subfloor Conditions.

- Plywood
- OSB
- Existing wood flooring (must meet subfloor condition requirements)

Concrete subfloors are not suitable for nail-down installation.

Nail Down Installation Tools

In addition to the general tools and accessories, the following tools and materials may be required for nail-down installations:

Flooring nailer or stapler (manual or pneumatic); air compressor with regulator (if pneumatic tools are used); fasteners appropriate for the flooring thickness; finishing nails for face nailing; underlayment material such as asphalt felt or equivalent.

Fastener size and type should be selected based on flooring thickness and tool manufacturer recommendations. Always test fasteners on a sample plank to ensure proper seating and to avoid surface damage.

Installation Steps

1. Select a starting wall. Installation is generally recommended along a straight exterior wall, as it is more likely to be square with the room. Measure from the wall the width of one plank plus the required expansion space, and snap a chalk line to establish a straight reference.
2. Install an approved underlayment material over the subfloor in accordance with manufacturer recommendations before beginning installation.
3. Position the first row of planks with the groove side toward the wall and aligned along the chalk line. Secure the first row using face nailing near the wall side, ensuring boards are properly positioned and aligned.

4. Continue installing the first row by blind nailing along the tongue where possible. Proper alignment of the starter row is critical to ensure straight and consistent installation throughout the project.
5. Proceed with installation across the room using blind nailing. Fasteners should be spaced consistently along the length of each board and positioned near end joints to ensure proper holding strength.
6. Install planks by engaging the tongue and groove joints and securing them with appropriate fasteners. Ensure boards are tightly fitted together while maintaining proper alignment.
7. Maintain proper joint spacing throughout the installation. End joints should be staggered from row to row to avoid alignment, and repeating patterns such as “H-joints” should be avoided. A minimum stagger is recommended, and varying plank lengths should be used where possible to achieve a natural appearance.
8. Continue installation toward the far wall, cutting boards as needed to fit while maintaining the required expansion space along all vertical obstructions.
9. As the installation approaches the far wall, it may be necessary to use face nailing for the final rows where the flooring nailer cannot be used. Use appropriate tools such as a pull bar to position boards securely without restricting movement.
10. After installation is complete, install or reinstall base moldings and trim, ensuring that expansion space is not restricted.

Final Inspection

After installation is complete, inspect the floor for gaps, misalignment, surface damage, or any boards that may not be properly secured. Make any necessary corrections prior to project completion.

Notes

- Nail-down installation is generally not recommended for planks wider than 5 inches or for installations over radiant heat systems.
- For wider planks, adhesive may be required in combination with mechanical fastening (Glue Assist or Full Spread methods).
- Always select fasteners appropriate for the flooring thickness and follow tool manufacturer recommendations.
- Test fasteners on a sample plank to ensure proper seating and to avoid surface damage such as dimpling.
- Ensure fasteners do not interfere with proper tongue-and-groove engagement.

Glue Down Installation

Glue-down installation is a method in which flooring is adhered directly to the subfloor using an appropriate wood flooring adhesive.
The performance of the adhesive is the responsibility of the adhesive manufacturer. The wood flooring manufacturer does not warrant the adhesive bond between the subfloor and the flooring.
All adhesive products must be used in accordance with the adhesive manufacturer's instructions.

Applicable Subfloors

- Concrete
- Plywood
- OSB
- Existing wood flooring (must meet subfloor condition requirements)

Glue Down Installation Tools

In addition to the general tools and accessories listed above, the following tools and materials may be required for glue-down installations: wood flooring adhesive appropriate for the selected installation; trowel sized according to adhesive manufacturer recommendations; straight edge; non-abrasive cloths for cleaning adhesive during installation.
Follow adhesive manufacturer instructions for proper application, open time, and cleanup procedures.

Installation Steps

1. Select a starting wall. Installation is generally recommended along a straight exterior wall, as it is more likely to be square with the room. Measure from the wall the width of one or two planks plus the required expansion space, and snap a chalk line to establish a straight reference.
2. Secure a straight edge along the chalk line prior to spreading adhesive to ensure proper alignment of the starter rows. Accurate alignment at this stage is critical to prevent cumulative misalignment during installation.
3. Apply adhesive to the subfloor using a trowel recommended by the adhesive manufacturer, holding the trowel at an appropriate angle to achieve proper adhesive coverage. Spread only as much adhesive as can be covered within the adhesive's working time, and work in manageable sections to maintain proper control and transfer.
4. Install the first row with the tongue side facing the starting line or straight edge. Ensure boards are properly aligned and tightly fitted together. Proper starter row alignment is essential for maintaining consistent row installation throughout the project.

5. Once the starter rows are secured, continue spreading adhesive in sections along the length of the room. Do not spread more adhesive than can be covered before it begins to set or lose tack. If adhesive skins over, remove and reapply before continuing installation.
6. Install planks by placing the tongue into the groove and pressing firmly into the adhesive to ensure proper contact. Avoid sliding planks through adhesive, as this may interfere with proper bonding. Work within a reachable area to avoid stepping on freshly installed flooring.
7. Maintain proper joint spacing throughout the installation. End joints should be staggered from row to row to avoid alignment, and repeating patterns such as “H-joints” should be avoided. Random plank lengths should be used where possible to achieve a natural appearance.
8. Periodically check for proper adhesive transfer by lifting a plank and verifying adequate coverage. Reinstall immediately after inspection. Clean any adhesive from the surface during installation using non-abrasive materials before it cures.
9. Continue installation toward the far wall, trimming the final row as needed to maintain the required expansion space. Use appropriate tools such as pull bars to fit the final rows into place without restricting movement.
10. After installation is complete, allow the adhesive to cure according to manufacturer recommendations before permitting foot traffic or moving furniture. Additional curing time may be required depending on site conditions.

Final Inspection

After the floor has been cleaned, perform a final inspection to check for gaps, alignment issues, surface damage, or other installation-related concerns. Address any issues as needed prior to project completion.

Notes

- Avoid working directly on top of freshly installed flooring during glue-down installation.
- Ensure that adhesive does not enter the tongue-and-groove joints, as this may affect proper fit and long-term performance.
- Maintain clean working conditions throughout installation and remove adhesive residue promptly to prevent surface damage.
- Where necessary, apply light and even pressure to ensure proper contact between the flooring and subfloor while the adhesive is still active, using protective materials to avoid damaging the floor surface.

Glue & Nail Installation

Glue & Nail installation may be required when installing wider planks and is generally recommended for planks over 5 inches in width. For planks exceeding approximately 7.5 inches, the use of adhesive in combination with mechanical fastening is strongly recommended to improve stability and overall performance.

Applicable Subfloors

- Plywood
- OSB
- Existing wood flooring (must meet subfloor condition requirements)

Concrete subfloors are not suitable for nail-down installation.

Installation Steps

1. Measure from the starting wall the width of one flooring plank plus the required expansion space. Mark points at each end of the wall and snap a chalk line to establish a straight starting reference.
2. Apply adhesive to the subfloor along the chalk line, spreading enough material to install the first row while keeping the chalk line visible for alignment. Follow the adhesive manufacturer's recommendations regarding open time and working conditions before proceeding.
3. Install the first row with the tongue side facing the room, aligned along the chalk line. Secure the first row using face nailing near the wall side, ensuring boards are properly positioned and aligned. Once secured, continue with blind nailing along the tongue to provide additional holding strength. Verify that the first row remains straight before proceeding.
4. Apply additional adhesive to the subfloor in manageable sections sufficient to install several rows at a time. Avoid spreading more adhesive than can be covered within the recommended working time.
5. Install subsequent rows by engaging the tongue and groove joints and securing them with blind nailing. Maintain consistent fastener spacing and ensure boards are tightly fitted together. Stagger end joints from row to row to avoid alignment, maintaining an appropriate offset for structural integrity and appearance.
6. Continue the installation across the room using a combination of adhesive and mechanical fastening. Avoid repeating patterns such as "H-joints," and use varying plank lengths where possible to achieve a natural layout.
7. Clean adhesive from the flooring surface during installation in accordance with the adhesive manufacturer's recommendations. Use only appropriate cleaning materials and avoid excessive use of adhesive remover on large surface areas.
8. Continue installation toward the far wall, trimming boards as needed to maintain the required expansion space.

9. As installation approaches the far wall, it may be necessary to face nail the final rows where the flooring nailer cannot be used. Use appropriate tools, such as a pull bar, to position boards securely without restricting movement.
10. Complete the installation by installing or reinstalling base moldings and trim, ensuring that expansion space is not restricted.

Final Inspection

After installation is complete, inspect the floor for gaps, misalignment, surface damage, or any boards that may not be properly secured. Address any issues prior to project completion.

Notes

- Glue & Nail installation is recommended for wider planks to improve overall floor stability and reduce movement.
- Always follow adhesive manufacturer recommendations for application, open time, and cleanup procedures.
- Fasteners must be appropriate for the flooring thickness and installed using proper techniques to avoid damage to the flooring surface.
- Installers should test fastening methods on sample planks to ensure proper seating and to prevent issues such as dimpling or surface damage.
- Improper fastening techniques or tool settings may result in damage and are not considered manufacturing defects.

Floating Installation

In floating-floor installations, the flooring is not attached to the subfloor and is installed as a free-floating system. Floating installation is suitable only for flooring systems designed for floating applications, such as click-lock or tongue-and-groove constructions. For floating-floor installations, refer to the NWFA Installation Guidelines and product-specific instructions for proper procedures.

Applicable Subfloors

- Plywood
- Concrete
- OSB / Particle board (must meet Subfloor Condition requirements)

Floating Installation Tools

In addition to the general tools and accessories, the following tools and materials may be required for floating floor installations: Tapping block (non-marring); pull bar; spacers to maintain expansion gaps; utility knife or saw for cutting planks; measuring tape; chalk line; rubber mallet (if required for locking systems); appropriate adhesive for tongue-and-groove systems (if applicable). Follow product-specific instructions for proper tool usage and installation methods.

Underlayment Recommendation

Floating floor installations require the use of an appropriate underlayment system. Select an underlayment that is compatible with floating floor applications and suitable for the specific jobsite conditions. When installing over concrete subfloors, an underlayment with a vapor retarder may be required.

Installation Steps

1. Ensure the subfloor is clean, dry, structurally sound, and flat within the required tolerances prior to installation.
2. Install the appropriate underlayment over the subfloor in accordance with the underlayment manufacturer's instructions.
3. Establish a starting line along a straight wall, allowing for the required expansion space between the flooring and all vertical obstructions.
4. Install the first row of flooring, ensuring proper alignment and engagement of tongue-and-groove or locking joints.
5. Continue installation by connecting boards according to the system design, ensuring joints are tightly fitted and rows remain straight.
6. Maintain proper expansion space around the entire perimeter and at all fixed objects, including walls, pipes, and cabinets.
7. Stagger end joints from row to row to avoid alignment and create a natural appearance. Avoid repeating patterns such as "H-joints."
8. Continue installation across the room, using appropriate tools such as tapping blocks or pull bars as needed to ensure tight joints without damaging the flooring.
9. Complete the final row by cutting boards as necessary while maintaining the required expansion space.

Note

- Install transition moldings, such as thresholds, T-moldings, baseboards, and quarter round. Secure moldings to the wall, not the flooring, to allow for movement.
- Clean the floor using a broom or vacuum to remove debris, dust, and installation residue.
- Inspect the finished floor for visible defects such as gaps, damage, or surface imperfections. Contact Bentham Plank for approved touch-up materials if needed.
- Clean the floor using an approved hardwood floor cleaner and perform initial maintenance in accordance with Bentham Plank Care & Maintenance Guidelines.

- Retain any unused material for future repairs and store in a dry, climate-controlled environment.
- When moving heavy furniture or appliances, use protective materials such as plywood or hardboard to prevent damage to the floor surface.
- Large continuous areas may require expansion breaks depending on layout and site conditions.

Natural Wood Color Changes

Bentham Plank flooring products are made of natural wood species, so natural color changes may occur after a certain period and should not be considered product defects. Depending on the intensity in which the floor is exposed to the sunlight, lighter wood usually turns darker while darker wood typically becomes lighter, especially during the first 3-6 months.

NOTE - For further questions and concerns, please contact the Bentham Plank Service Team at any time.

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